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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PROCTOR, JASON SCOTT	
ART UNIT	**PAPER NUMBER**
2123	

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/827,739	SANDHAM, JOHN H.	
	Examiner	Art Unit	
	Jason Proctor	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8/20/2001.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-12 have been rejected.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Great Britain on October 10, 1998. It is noted, however, that applicant has not filed a certified copy of the 9822074.2 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-12 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility. It is not apparent to the examiner that the claimed invention produces a useful, concrete, and tangible result.

5. While the claims 1-4 all recite "a method for emulating a processor", the teachings of the disclosure achieve this "emulation" by performing arithmetic operations to translate memory addresses, an example of which is given in the specification (pages 3-9) and well within the capabilities of an ordinary human being. While it is appreciated that claim 1 recites "bytes stored in a memory addressed by a processor", claim 2 recites "any two bytes stored in memory", and claim 3 recites "strings of bytes in the first endian format which are stored successively by the processor", all of these computer-

related terms are prefaced by the term "such that", granting an exemplary definition to the computer-related terms. For example, it is quite possible for a human to perform a memory address translation such that the resulting byte locations, when addressed by a processor, conform to a certain convention.

6. Claim 5 recites "a process for compiling or translating a computer program code instruction", however the claimed limitations similarly relate to performing an arithmetic memory address translation and recite no tangible embodiment such that a human being would not infringe the claimed limitations. Claims 6-8 which depend upon claim 5 fail to incorporate any limitation that precludes a human being from performing the process.

7. Claims 9-12 all recite "an endian transformation system" which relate performing arithmetic operations to translate memory addresses similar to claims 1-5 above.

8. See MPEP 2106 regarding statutory and nonstatutory patent claims as applied to computer-related inventions. In claims 1-12, the tangible result of the methods, processes, or systems is unknown to the examiner.

9. To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. § 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Double Patenting

10. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. § 101 which states that "whoever invents or

discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. § 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. § 101.

11. Claims 1-12 are provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1-12 of copending Application No. 10/176,694. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

12. Claims 1-12 are provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1-12 of copending Application No. 10/177,131. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claims 1-4 and 9-12 rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for a process of emulating a processor which consists solely of translating memory addresses with regard to big or little endian arrangements, does not reasonably provide enablement for every conceivable means of

emulating a processor including those that translate memory addresses. The disclosure is enabling for at most those means of emulating a processor known to the inventor. Claims 1-4 and 9-12 are single means claims and therefore not enabling for the scope of the claim. See MPEP 2164.08(a).

15. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claim 1-4 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

17. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "emulate" in claims 1-4 is used by the claim to mean "adapting program code intended for a first processor to execute on a second processor which observes a different convention for ordering the significance of bytes within words", while the accepted meaning is "directly executing program code intended for a processor of a different design on the current processor." (See Microsoft Computer Dictionary) The term is indefinite because the specification does not clearly redefine the term.

Claim Interpretation

18. Regarding claims 1-4, the term "emulating a processor" has been interpreted as "adapting program code intended for a first processor to execute on a second processor which observes a different convention for ordering the significance of bytes within words."

Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> **A person shall be entitled to a patent unless –**
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 9-12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Loen et al. US Patent No. 5,968,164.

21. Regarding claim 1, Loen et al. teaches a method for adapting program code intended for a first processor to execute on a second processor which observes a different convention for ordering the significance of bytes within words wherein memory addresses are transformed to reflect the difference between big endian and little endian addressing conventions which result in a mirror image of the original bytes (column 6, line 20 – column 7, line 29; Figures 3A-3B).

22. Regarding claim 2, Loen et al. also teaches that one addressing convention is the reverse of the other and the transformation preserves the offset between addresses

and the relative order of addresses of bytes stored in memory is reversed (column 6, line 20 – column 7, line 29; Figures 3A-3B).

23. Regarding claim 3, Loen et al. also teaches that byte strings stored successively by the processor aggregate in the same manner as if the code had been executed on a processor that is naturally biased toward the same endian convention as the code (column 6, line 20 – column 7, line 29; Figures 3A-3B). While Loen et al. does not explicitly disclose this feature, it is inherent in a computer system which supports big and little endian code equally well (column 4, lines 49-55; column 7, line 62 – column 8, line 18). If the invention of Leon et al. did not aggregate byte strings as though they had not been translated, then code would need to be specifically designed for the processor to accommodate this peculiarity of the endian implementation.

24. Regarding claim 4, Leon et al. also teaches that the memory address B of word length L is transformed to the address A-B-L+S where A is the total number of bytes allocated to the program and S is the start address of the program (Figures 4A-4D). Figures 4A-4D of Leon et al. discloses an example where A=8, S=0, and L is 8, 16, 32, or 64 bit, however also teaches other values for L (column 7, lines 62 – column 8, line 46).

25. Regarding claim 5, Leon et al. teaches a process for translating a program code instruction for execution on a programmable machine using a corresponding predetermined convention of ordering the significance of bytes within words of the address space (column 6, line 20 – column 7, line 29; Figures 3A-3B) comprising:

transforming the referenced memory address with respect to a fixed block size of memory in the programmable machine so as to change the referenced address value by an amount that is fixed for a given number of bytes being accessed in each word (Figures 4A-4D; column 7, lines 62 – column 8, line 46);

including the changed address reference in the output instruction so that there is no extra operation required during execution of the instruction to accommodate the convention for ordering bytes within words used by said predetermined programmable machine (column 7, lines 62 – column 8, line 46).

26. Regarding claim 6, Leon et al. teaches that the system is applied to program source code (column 7, lines 62 – column 8, line 46).

27. Regarding claim 7, Leon et al. teaches that a fixed block of memory is either big endian or little endian and therefore addressed from a predetermined one of its two ends depending upon the convention utilized for ordering the significance of bytes within the words (column 6, line 20 – column 7, line 29; Figures 3A-3B).

28. Regarding claim 8, Leon et al. teaches that the translation causes a fixed block of memory contents for a big-endian machine to be inverted to the mirror image of that for a little-endian machine (column 6, line 20 – column 7, line 29; Figures 3A-3B).

29. Claims 9-12 all recite "an endian transformation system" which performs the methods of claims 1-4, respectively. As the invention disclosed by Leon et al. is indeed

a system that performs a method used to reject claims 1-4 (column 4, lines 49-55), claims 9-12 are rejected for the same reasons used to reject claims 1-4 above.

Conclusion

Art considered pertinent by the examiner but not applied has been cited on form PTO-892. In particular, the examiner has attempted to cite prior art that is substantially equivalent to applicant's invention in function or structure and could form the basis for a rejection under 35 U.S.C. §§ 102 or 103, but is not applied in this office action. The examiner requests that applicant consider these references if amending the claims at a future date.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J Teska can be reached on (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

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